REMARKS/ARGUMENTS

Claim Status

Claims 1-8 are pending. Claims 1, 3 and 8 are currently amended. Claim 8 is withdrawn pursuant to a previous Restriction Requirement. Claims 1 and 3 are amended to correct "growth-effected" to "growth-affected". Claim 1 is also amended for grammatical purposes, to improve readability, and to include the electrical conductivity parameter of original claim 8. Claim 8 is also amended for grammatical purposes and to improve readability. No new matter has been entered.

Specification Objections

Both the Abstract and the entirety of the specification have been objected to for the improper use of "effect/effected" instead of "affect/affected". Numerous amendments have been made, see "Amendments to the Specification" section above.

Accordingly, Applicants request withdrawal of these objections.

Claim Objections

Claim 1 has been objected to for the use of "effect/effected" instead of "affect/affected". As stated above, this has been corrected. Claim 1 has also been objected to for improper spacing between words. All spacing of claim 1 as originally presented is proper and as such remains unchanged in this amendment. Perhaps the scanned image the Office refers to appears to lack spacing due to the different font and character spacing used, however the proper spacing does exist.

Furthermore, the Office requests that all other claims using "effect/effected" be changed to "affect/affected". This has been done in claim 3 as well as claim 1.

Accordingly, Applicants request withdrawal of these objections.

§112 Rejection

Claim 3 is rejected under 35 U.S.C. §112, second paragraph, for the omission of an essential element, namely the maximum size of the average particle diameter of the particle growth-affected powder. The Office asserts that since claim 1 states that the average particle diameter of the particle growth-affected powder is less than the average particle diameter of the porous thick film, and claim 2 limits the average particle diameter of the particle growth-affected powder to not more than 200nm, then the average particle diameter of the particle growth-affected powder of claim 3 must also be limited to not more than 200nm in addition to the recitation of at least 45nm.

Applicants point out that claim 3 is dependent from claim 1, not claim 2, therefore claim 3 is not required to include the limitations of claim 2. Furthermore, in accordance with M.P.E.P. §2173.05(c) Part II, Applicants are permitted to claim open-ended numerical ranges; however, it should be noted that this particular claim (i.e., claim 3) can be said to already have both a lower limit (i.e., 45nm) and an upper limit (i.e., "less than the average particle diameter of the porous thick film").

Accordingly, as claim 3 is not required to include an upper limit of 200nm as stated by the Office, Applicants request withdrawal of this rejection.

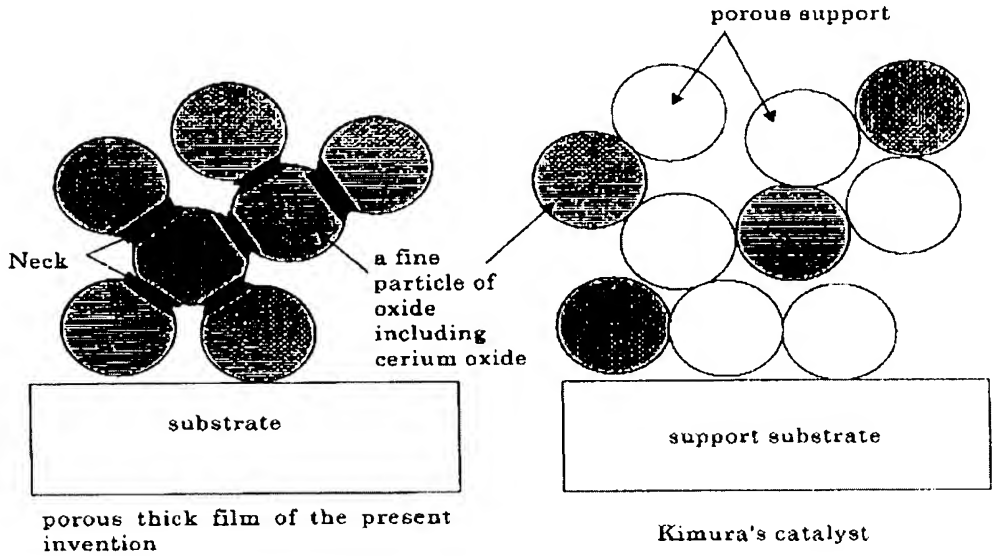
§103(a) Rejection

Claims 1-7 are rejected under 35 U.S.C. §103(a) as obvious in view of the combination of *Kimura* (US 5,945,369), *Hata* (US 6,068,828), *Utter* (US 5,819,652) and *Ishikawa* (US 6,521,671). Applicants respectfully traverse this rejection.

As discussed above, the claimed method of manufacturing a porous thick film now includes that the porous thick film have an electrical conductivity of at least 10^{-3} S/m at 800°C (see claim 1). Electrical conductivity is important for oxygen partial pressure sensing

components (e.g., porous thick films) of resistance-type oxygen sensors in air-fuel ratio feedback control systems that control the air-fuel ratio in the exhaust gas of automobiles. Thus, to obtain electrical conductivity of the porous thick film, mechanical contact between the oxide particles is required and a "neck" (see diagram below) is necessary at the point of contact between the oxide particles to give greater electrical conductivity and lower electrical resistance of the porous thick film.

In contrast, *Kimura* relates to catalysts and manufacturing methods thereof (Abstract). More specifically, *Kimura* discloses a catalyst comprising cerium oxide particles and a porous support (Abstract). The porous support in such a catalyst is ideally present in amounts large enough to prevent contact amongst the oxide particles so that the catalyst may function properly; this is due to potential sintering of the oxide particles upon contact. Thus, as shown in *Kimura's* First Preferred Embodiment, the amount of the porous support (i.e., alumina powder – 47 grams) is much greater than that of the oxide particles (i.e., cerium oxide sol – 21.9 grams (73 grams x 30 wt%)). This equates to a ratio of alumina: cerium oxide of 7:1. Therefore, the electrical resistance of the porous support (i.e., alumina) predominates, thereby resulting in an insulating catalyst with no electrical conductivity (see also diagram below).



Accordingly, *Kimura's* catalysts do not disclose or suggest porous thick films having an electrical conductivity of at least 10^{-3} S/m at 800°C as claimed by Applicants. Furthermore, none of *Hata*, *Utter* or *Ishikawa*, alone or in combination, fulfill this deficiency of *Kimura*. Therefore, the combination of *Kimura*, *Hata*, *Utter* and *Ishikawa* does not disclose or suggest (i.e., render obvious) Applicants' claims.

Thus, Applicants request withdrawal of this rejection.

Conclusion

For the reasons discussed above, Applicants submit that all now-pending claims are in condition for allowance. Applicants respectfully request the withdrawal of the objections and rejections and passage of this case to issue.

Respectfully submitted,

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